TABLE 3.—*Total, I_m, and screened, I_v, I_r, solar radiation intensity measurements, obtained during March 1935, and determinations of the atmospheric turbidity fator β, and water-vapor content, w=depth in millimeters, if precipitated*—Continued

BLUE HILL METEOROLOGICAL OBSERVATORY OF HARVARD UNIVERSITY

Date and hour angle	Solar altitude	Air mass	I_m	I_v	I_r	$\beta_{I_{m-r}}$	$\beta_{I_{v-r}}$	β_{mean}	$\frac{I_{w=0}}{1.94}$ Percentage of solar constant	$\frac{I_{w=0}-I_m}{1.94}$ Percentage of solar constant	w	Air-mass type
Mar. 24	° ′	*m*	*gr. cal.*	*gr. cal.*	*gr. cal.*						*mm*	
2:52 a. m.	33 48	1.79	1.292	0.905	0.732	0.047	0.074	0.060	74.3	8.1	7.5	NPc
2:28 a. m.	37 18	1.65	1.355	.941	.758	.055	.035	.045	78.5	9.1	8.3	
0:08 a. m.	49 00	1.32	1.432	.973	.767	.045	.046	.046	81.7	9.8	10.5	
0:11 p. m.	48 58	1.32	1.437	.978	.772	.029	.058	.044	82.0	8.4	10.3	Pc
2:29 p. m.	37 10	1.65	1.329	.922	.724	.033	.038	.036	79.5	6.0	7.7	
Mar. 25												
3:40 p. m.	25 09	2.35	.924	.665	.528	.084	.093	.088	62.9	15.5	6.3	Pc
4:23 p. m.	18 37	3.11	.792	.585	.475	.083	.108	.096	54.4	13.8	4.7	Tc aloft
Mar. 26												
2:41 a. m.	36 25	1.68	1.345	.946	.767	.049	.067	.058	75.8	7.0	7.8	
0:29 a. m.	49 18	1.31	1.489	1.019	.815	.027	.050	.038	83.1	6.7	9.9	Pc
0:02 a. m.	49 49	1.30	1.464	1.006	.805	.028	.048	.038	83.0	7.9	10.0	
3:23 p. m.	29 30	2.02	1.359	.947	.773	.031	.056	.044	74.7	5.0	6.0	
Mar. 27												
2:56 a. m.	34 06	1.78	1.390	.974	.802	.036	.074	.055	77.1	5.8	7.2	
0:29 a. m.	49 42	1.31	1.506	1.029	.823	.086	.050	.068	78.8	1.5	7.0	Pc
0:12 p. m.	50 08	1.30	1.498	1.032	.818	.062	.026	.044	82.1	5.2	9.5	
3:27 p. m.	29 12	2.05	1.305	.926	.749	.036	.051	.044	74.7	7.7	6.5	Pc
Mar. 29												
2:48 a. m.	35 38	1.71	1.136	.781	.619	.067	.095	.081	71.2	12.8	8.4	Pc
Mar. 30												
3:27 p. m.	29 59	2.00	1.266	.867	.696	.031	.062	.046	74.9	9.8	6.9	Tc aloft
5:13 p. m.	11 07	5.08	.690	.523	.424							

TABLE 4.

Date	Time	Number of particles per cubic centimeter	Visibility	Date	Time	Number of particles per cubic centimeter	Visibility
			Miles				*Miles*
Mar. 20	9:30 a. m.	1,953	3	Mar. 22	7 a. m.	1,712	3
Mar. 21	9:30 a. m.	930	5	Mar. 25	7 a. m.	1,124	5
Mar. 21	5:20 p. m.	3,255	2	Mar. 26	7 a. m.	452	2
Mar. 21	8 p. m.	737	10	Mar. 27	7 a. m.	1,364	1

Atmospheric conditions during solar radiation measurements, Blue Hill Observatory of Harvard University

Date and time from apparent noon	Air temperature	Wind (Beaufort scale)	Visibility (scale 0–10)	Sky blueness	Cloudiness and remarks
March 1935	°C.				
1; 0:28 a. m.	−2.8	SW 5	8–9	10	7 Ci, Cist, light haze.
3; 3:04 a. m.	+5.6	WNW 6	7	8	2 Frcu, Stcu, heavy water haze.
3; 1:42 a. m.	+3.9	WNW 7	8	9	Few Frcu. Light haze.
3; 1:44 p. m.	+3.9	NNW 6	9		2 Cu, Stcu.
3; 3:25 p. m.	+3.5	NW 7	9	9	Few Cu, Frcu, unusual visibility.
4; 0:51 a. m.	−2.8	NW 3	8	10	3 Cist, Ci, moderate haze.
8; 0:11 a. m.	−6.1	NxE 5	6–8	9	2 Frcu, Cu, Fum, heavy water haze.
8; 0:12 p. m.	−5.6	NNE 5	8	9	Cu, Fum, Frcu, heavy water haze.
8; 1:53 p. m.	−5.0	NNE 4	8–9	10	Few Cu, Frcu, light haze.
8; 3:18 p. m.	−5.0	NNE 3	8–9	10	Few Stcu, Cu, light haze.
8; 4:42 p. m.	−4.4	NE 3	9	11	Few Stcu, light haze.
9; 2:04 a. m.	−5.6	N 4	6–8	9	Few Ci, few Cu. Mod. to heavy haze.
9; 0:48 a. m.	−3.9	NE 3	7	10	No clouds, heavy haze.
9; 1:06 p. m.	−2.2	var 3	8–9	11	Few Ci, moderate haze.
13; 3:24 p. m.	+1.7	NWxW 6	8	8	7 Stcu, Cu, light haze.
14; 2:51 a. m.	−3.9	W 2	7–8	9	Few Ci, moderate haze.
14; 0:16 a. m.	−1.1	NW 2	8	9	5 Cist, 1 Acu, moderate haze.
16; 2:55 p. m.	+20.6	SW 5	7	9	2 Ci, moderate haze.
16; 3:23 p. m.	+21.1	WSW 5	7	9	2 Ci.
18; 2:59 a. m.	−6.1	NW 5	9	9	No clouds.
18; 0:05 a. m.	−0.6	NW 5	9	10	Few Ci, light haze.
20; 2:53 a. m.	+7.8	NW 4	7	9	2 Ci, 2 Cu, moderate haze.
20; 0:14 a. m.	+10.0	WNW 3	7	9	1 Acu, few Cu, heavy haze.
20; 2:55 p. m.	+13.3	WNW 4	7–8	9	Few Ci, heavy haze.
22; 2:35 a. m.	+7.2	NW 7	9	12	Few Frcu, no haze. Gusty, pyrh. vibrating.
22; 0:03 a. m.	+10.0	WNW 8	9–10	12	Few Frcu, Cu. no haze, rel. hum. 9%.
22; 3:17 p. m.	+11.1	WNW 8	9	11	Few Cu, light haze.
24; 2:50 a. m.	+4.4	NW 7	9	9	Few Frcu, moderate haze to W, gusty.

Atmospheric conditions during solar radiation measurements, Blue Hill Observatory of Harvard University—Continued

Date and time from apparent noon	Air temperature	Wind (Beaufort scale)	Visibility (scale 0–10)	Sky blueness	Cloudiness and remarks
March 1935	°C.				
24; 0:05 a. m.	+7.2	NW 6	9	11	Few Frcu, no haze.
24; 2:41 p. m.	+8.9	NW 5	9–10	10	Few Ci, few Cu, no haze, gusty.
25; 3:23 p. m.	+5.0	var 2 bec. NE.	8	8	Few Ci, few Cu, E wind below, variable smoke.
26; 2:59 a. m.	−2.2	NW 4	7–9	10	No clouds, moderate haze.
26; 0:18 a. m.	+1.7	NW 6	9	10	No clouds, slight haze, gusty.
26; 3:05 p. m.	+3.3	NW 6	9	10	Few Frcu, no haze, gusty.
27; 3:11 a. m.	−1.7	WNW 4	9	10	No clouds, light haze.
27; 0:04 a. m.	+5.0	WNW 6	9	10	No clouds, haze to W.
27; 2:32 p. m.	+8.9	WNW 4	8–9	9	Few Ci.
29; 2:45 a. m.	+3.9	WNW 4	7	6	Few Cu, heavy haze.
30; 1:16 p. m.	+4.4	WNW 6	8	9	1 Ci, few Cu.
30; 3:30 p. m.	+6.7	W 6	9	7	3 Ci, few Cu.

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, U. S. Navy, Superintendent U. S. Naval Observatory. Data furnished by the U. S. Naval Observatory in cooperation with Harvard and Mount Wilson observatories. The difference in longitude is measured from the central meridian, positive west. The north latitude is positive. Areas are corrected for foreshortening and are expressed in millionths of the sun's visible hemisphere. The total area for each day includes spots and groups]

Date	Eastern standard time	Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day	Observatory
1935	*h* *m*	°	°	°				
Mar. 1	11 6	−21.0	73.7	−18.0		93	93	U. S. Naval.
Mar. 2	12 20	−10.0	70.9	−18.0		93	93	Do.
Mar. 3	12 53	+4.0	71.4	−18.0		93	93	Do.
Mar. 4	11 18	+20.0	76.6	−17.0	222		222	Harvard.
Mar. 5	11 18	+30.0	71.9	−18.0		139	139	Mt. Wilson.
Mar. 6	11 13	+44.0	72.8	−18.0	77		77	U. S. Naval.
Mar. 7	10 6	+59.0	76.3	−17.0	100		100	Harvard.
Mar. 8	10 27	+73.0	76.3	−16.5	130		130	Do.
Mar. 9	11 10	−70.0	279.3	−17.0		123		U. S. Naval.
		+85.0	74.3	−18.5	31		154	
Mar. 10	12 12	−60.0	275.6	+2.0	62			Do.
		−56.0	279.6	−17.0		93	155	
Mar. 11	14 26	−48.0	273.3	+0.5		96		Mt. Wilson.
		−42.0	279.3	−18.0		41		
		+28.0	349.3	−28.0		4		
		+39.0	360.3	+22.0		25	166	
Mar. 12	11 0	−35.0	274.8	+0.5		171		Do.
		−29.0	280.8	−17.0		28		
		+39.0	348.8	−28.5		17		
		+54.0	363.8	+22.0		16	232	

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day	Observatory
	h m	°	°	°				
Mar. 13	10 57	−22.0	274.7	+2.0		170		U. S. Naval.
		−17.0	279.7	−17.0		93		
		+51.0	347.7	−27.5		15		
		+67.0	363.7	+25.0		15	293	
Mar. 14	11 23	−70.0	213.3	+23.0	39			Do.
		−8.0	275.3	+1.5		139		
		−4.0	279.3	−16.5		108		
		+65.0	348.3	−27.0		77	363	
Mar. 15	11 6	−56.0	214.3	+22.5	62			Do.
		+4.5	274.8	+1.5		93		
		+9.0	279.3	−16.5		77	232	
Mar. 16	11 27	−40.0	216.9	+22.5		77		Do.
		+4.0	260.9	+30.0		93		
		+18.5	275.4	+1.0		62		
		+20.0	276.9	−15.5		62	294	
Mar. 18	11 24	−12.0	218.6	+22.5		23		Do.
		+30.0	260.6	+30.0		108		
		+48.0	278.6	+1.0	54		185	
Mar. 20	11 7	−68.0	136.4	−21.5		39		Do.
		+56.5	260.9	+31.0		93	132	
Mar. 21	13 15	−54.0	136.0	−21.0		62		Do.
		+70.0	260.0	+31.0		100	162	
Mar. 22	13 48	−39.0	137.5	−22.0		54	54	Do.
Mar. 23	10 45	−27.0	137.9	−22.0		32	32	Mt. Wilson.
Mar. 24	13 30	−17.0	133.3	−22.0		7	7	Do.
Mar. 25	11 5	−31.0	107.4	−34.0		9	9	Do.
Mar. 26	10 22	No spots						U. S. Naval.
Mar. 27	11 39	No spots						Do.
Mar. 28	10 45	No spots						Mt. Wilson.
Mar. 29	11 20	No spots						U. S. Naval.
Mar. 30	11 7	No spots						Do.
Mar. 31	9 15	No spots						Mt. Wilson.
Mean daily area for 29 days							118	

PROVISIONAL SUN-SPOT RELATIVE NUMBERS, MARCH 1935

(Dependent alone on observations at Zurich and its station at Arosa)

[Data furnished through the courtesy of Prof. W. Brunner, Eidgen. Sternwarte, Zurich, Switzerland]

March 1935	Relative numbers	March 1935	Relative numbers	March 1935	Relative numbers
1	19	11	*Wc* 34	21	25
2		12	44	22	17
3	*a* 20	13	56	23	12
4		14	*da* 72	24	8
5	17	15	*aa* 68	25	8
6	15	16	*Mc* 50	26	8
7	8	17	43	27	7
8	8	18	33	28	0
9	*d* 17	19	*Ec* 40	29	
10	*Ec* 27	20	35	30	0
				31	

Mean, 27 days = 25.6

a = Passage of an average-sized group through the central meridian.
c = New formation of a center of activity: *E*, on the eastern part of the sun's disk; *W*, on the western part; *M*, in the central zone.
d = Entrance of a large or average-sized center of activity on the east limb.

AEROLOGICAL OBSERVATIONS

[Aerological Division, D. M. LITTLE, in Charge]

By L. T. SAMUELS

Free-air temperatures during March averaged below normal at the western stations and above normal elsewhere, at stations where a sufficient period of previous record made it possible to determine departures. (See table 1.) The magnitudes of the departures ranged from moderate to large in most cases. The lowest average temperatures for the month occurred at the highest levels over the extreme Northwest. Free-air relative humidity departures were small in most cases, the largest being negative and occurring over San Diego.

The directions of the resultant winds for the month at 1,000 meters above sea level were close to the normal over the Pacific coast stations, but were more southerly than normal over the Plains States and southward from the Great Lakes. (See table 2.) A greater northerly component than normal occurred over Sault Ste. Marie and Boston. The velocities of the resultant winds at this level were mostly in excess of the normal, with greatest departures over Oklahoma City, Murfreesboro, and Key West.

At 3,000 meters the directions of the resultant winds were westerly as compared to the normal west-northwesterly, over the central and north-central sections. At Key West they were easterly as compared to the normal westerly. The velocities were generally above normal over the more northern sections and below normal over the southern sections.

At 5,000 meters there was an excess of northerly components as compared to the normal over the middle Pacific coast region, and an excess of southerly components over the more eastern Rocky Mountain stations. The velocities exceeded the normal resultants over the western Plateau, the lower Plains States, and the northeastern section of the country, with the largest departures over the extreme northern stations.